No. 9600375

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'9482'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fourteenth day of June, in the year of our Lord two thousand one.

PLANT VARIETY PROTECTION OFFICE · DEPARTMENT OF AGRICULTURE

Attest:

Alan R. Post

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* | FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*

Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

3. VARIETY NAME

9482

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

700 Capital Square
400 Locust Street
Des Moines, Iowa 50309

5. TELEPHONE *(include area code)*

515/270-3582

6. FAX *(include area code)*

515/253-2288

FOR OFFICIAL USE ONLY

PVPO NUMBER: 9600375

FILING DATE: Aug. 30, 1996

FEES RECEIVED — FILING AND EXAMINATION FEE: $ 2450.00

DATE: Aug. 23, 1996

CERTIFICATION FEE: 320.00

DATE: 6/4/01

7. GENUS AND SPECIES NAME

Glycine max L.

8. FAMILY NAME *(Botanical)*

Luguminosae

9. CROP KIND NAME *(Common name)*

Soybean

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

Iowa

12. DATE OF INCORPORATION

May 6, 1926

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

~~John Grace~~ Dr. Daria Schmidt
7300 NW 62nd Ave.
P.O. Box 1004
Johnston, Iowa 50131-1004

10 April 2001

Debra Blair (Copy)
700 Captial Square
400 Locust St.
Des Moines, Iowa 50309

(include area code)

515/270-3582

15. FAX *(include area code)*

515/253-2288

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

- a. ☑ Exhibit A. Origin and Breeding History of the Variety
- b. ☑ Exhibit B. Statement of Distinctness
- c. ☑ Exhibit C. Objective Description of the Variety
- d. ☑ Exhibit D. Additional Description of the Variety
- e. ☑ Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. ☑ Voucher Sample *(2,600 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
- g. ☑ Filing and Examination Fee ($2450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED *(See Section 83(a) of the Plant Variety Protection Act)?*

☐ YES *If "yes," answer items 18 and 19 below)* ☑ NO *If "no," go to item (20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☑ YES *(If "yes," give names of countries and dates)* ☐ NO

U.S. - 1996

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
D. John Grace, III			
NAME *(Please print or type)*		NAME *(Please print or type)*	
D. John Grace III			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Soybean Research Coordinator	8/20/96		

SD-470 (1-95) *(Previous editions are to be destroyed)* *(See reverse for instructions and information collection burden statement)*

EXHIBIT A. Origin and Breeding History of the Variety

Soybean Variety 9482

9482 evolved from a 1987 cross made at Marshall, MO of 9501/9301.

It is an F4-derived variety which was advanced to the F4 generation by modified single seed descent. The F5 progeny row of 9482 was grown in the 1990 plant row nursery in Missouri as row 23284. Subsequently, 9482 has undergone 4 years of extensive testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation, with no evidence of variants. On the basis of superior yield and stress tolerance, variety 9482 was released for sale.

The purification block was grown during 1993 in Missouri, and 200 sublines were bulked for increase. 4 acres of 9482 were grown in 1994 in Illinois. 96.7 acres of parent seedstock (foundation seed equivalent) were grown in 1995 in Illinois and 5,200 bushels harvested.

EXHIBIT B. Statement of Distinctness

Soybean Variety 9482

9482 is most similar to 9472, 9481, A4715, A4922 and CX499c for late Maturity Group IV indeterminate growth habit, however 9482 is susceptible to Soybean Cyst nematode races 3 and 14, while the others in the above grouping have resistance to both races.

CM428, DPL3478, and CX469c have purple flowers while those of 9482 are white.

9482 and 9501 both have white flowers and tawny pubescence, but 9482 has tan pods while 9501 has brown pods and 9482 is significantly shorter than 9501 (Table 1).

Pioneer Hi-Bred Int'l Inc,

PVP Application - Exhibit B - Soybean Variety 9482

Table 1. T-test comparison of 9482 versus 9501 for height, 1992-95 3-year analysis.

YEAR	LOC	REP	9482 (X1 height	9501 (X2 height	X1-X2	$(X1-X2)^2$
1992	23B	1	33.0	36.0	3.0	9.00
	24A	1	22.5	26.0	3.5	12.25
	26I	1	42.5	49.0	6.5	42.25
	27I	1	45.0	51.0	6.0	36.00
1992		**SUM**	143	162	19	99.50
		MEAN	35.8	40.5	4.8	**=d**
		n =	4 groups of individuals			

1992 ANALYSIS

Ave 9482 =	35.8 inches
Ave 9501 =	40.5 inches
d =	4.8 inches
SE =	0.878
t	5.467
df =	3
Prob > t =	0.0120

1992 Standard Error Calculation:

$$SE = \sqrt{\frac{99.50-((19.00)^2/4)}{(4)(3)}}$$

significant at < 5% level

YEAR	LOC	REP	9482 (X1 height	9501 (X2 height	X1-X2	$(X1-X2)^2$
1994	21B	1	37.0	41.5	4.5	20.25
	26I	1	45.5	53.0	7.5	56.25
	26I	1	46.0	51.0	5.0	25.00
	27I	1	45.0	48.0	3.0	9.00
1994		**SUM**	173.50	193.50	20.00	110.50
		MEAN	43.4	48.4	5.0	**=d**
		n =	4 groups of individuals			

1994 ANALYSIS

Ave 9482 =	43.4 inches
Ave 9501 =	48.4 inches
d =	5.0 inches
SE =	0.935
t	5.348
df =	3
Prob > t =	0.0128

1994 Standard Error Calculation:

$$SE = \sqrt{\frac{110.50-((20.0)^2/4)}{(4)(3)}}$$

significant at < 5% level

YEAR	LOC	REP	9482 (X1 height	9501 (X2 height	X1-X2	$(X1-X2)^2$
1995	67	1	40.5	44.5	4.0	16.00
	67	1	39.5	43.0	3.5	12.25
	73	1	40.0	42.0	2.0	4.00
	73	1	46.0	48.7	2.7	7.29
	73	1	38.7	44.3	5.6	31.36
	G77A	1	28.0	34.0	6.0	36.00
	80F	1	38.7	42.3	3.6	12.96
	80F	1	38.0	42.7	4.7	22.09
	80G	1	22.7	27.0	4.3	18.49
	80G	1	19.7	29.7	10.0	100.00
	81A	1	28.3	34.7	6.4	40.96
1995		**SUM**	380.1	432.9	52.8	301.40
		MEAN	34.6	39.4	4.8	**=d**
		n =	11 groups of individuals			

1995 ANALYSIS

Ave 9482 =	34.6 inches
Ave 9501 =	39.4 inches
d =	4.8 inches
SE =	0.660
t	7.272
df =	10
Prob > t =	0.0000

1995 Standard Error Calculation:

$$SE = \sqrt{\frac{301.40-((52.8)^2/11)}{(11)(10)}}$$

significant at < 1% level

TOTAL		**SUM**	696.6	788.4	91.8	603.20
		MEAN	36.7	41.5	4.8	**=d**
		n =	19 groups of individuals			

COMBINED ANALYSIS

Ave 9482 =	36.7 inches
Ave 9501 =	41.5 inches
d =	4.8 inches
SE =	0.683
t	7.028
df =	18
Prob > t =	0.0000

Combined Standard Error Calculation:

$$SE = \sqrt{\frac{603.20-((91.8)^2/19)}{(19)(18)}}$$

significant at < 1% level

Method Used in Gathering Data

- Height measurements where taken on each plot at maturity. One (1) representative measurement was taken per plot. Height was measured from the soil surface to the terminal node.

-Plots were planted using a randomized complete block design. Plots were fifteen feet long by ten foot (four thirty inch rows) wide.

96000375

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SEED DIVISION - PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY

SOYBEAN (Glycine max L.)

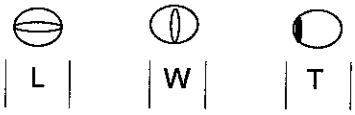
NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Pioneer Hi-Bred International, Inc.		9482

ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code)*
7300 N.W. 62nd Ave., P.O. Box 1004
Johnston, IA 50131-1004

FOR OFFICIAL USE ONLY
PVPO NUMBER 9600375

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero on the first box when number is 9 or less (e.g., [0][9]). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



[2]

1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Specify)

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[2] 1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

[1][3] Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

[6] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other (Specify)

★ 6. COTYLEDON COLOR: (Mature Seed)

[1] 1 = Yellow 2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

[ ] 1 = Low 2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

[ ] 1 = Type A (SP1 a) 2 = Type B (SP1 b)

★ 9. HYPOCOTYL COLOR:

[2] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Specify)

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Variety Name 9482

11. LEAFLET SIZE:

[2] 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[2] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

★ 13. FLOWER COLOR:

[1] 1 = White 2 = Purple 3 = White with purple throat

★ 14. POD COLOR:

[1] 1 = Tan 2 = Brown 3 = Black

★ 15. PLANT PUBESCENCE COLOR:

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[3] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

★ 17. PLANT HABIT:

[3] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

★ 18. MATURITY GROUP:

[0][7] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

★ [2] Bacterial Pustule *(Xanthomonas phaseoli var. sojensis)*

★ [0] Bacterial Blight *(Pseudomonas glycinea)*

★ [2] Wildfire *(Pseudomonas tabaci)*

FUNGAL DISEASES:

★ [0] Brown Spot *(Septoria glycines)*

Frogeye Leaf Spot *(Cercospora sojina)*

★ [0] Race 1 [0] Race 2 [0] Race 3 [0] Race 4 [0] Race 5 [ ] Other (Specify)

[0] Target Spot *(Corynespora cassiicola)*

[0] Downy Mildew *(Peronospora trifoliorum var. manshurica)*

[0] Powdery Mildew *(Microsphaera diffusa)*

★ [0] Brown Stem Rot *(Cephalosporium gregatum)*

[0] Stem Canker *(Diaporthe phaseolorum var. caulivora)*

19. DISEASES REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

★ [0] Pod and Stem Blight *(Diaporthe phaseolorum var; sojae)*

[0] Purple Seed Stain *(Cercospora kikuchii)*

[0] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma var. sojae)*

★ [1] Race 1 [1] Race 2 [1] Race 3 [1] Race 4 [1] Race 5 [0] Race 6 [1] Race 7

[1] Race 8 [1] Race 9 [ ] Other (Specify)

VIRAL DISEASES:

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

★ [0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

★ [0] Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode *(Heterodera glycines)*

★ [0] Race 1 [0] Race 2 [1] Race 3 [0] Race 4 [1] Other (Specify) 14

[0] Lance Nematode *(Hoplolaimus Colombus)*

★ [0] Southern Root Knot Nematode *(Meloidogyne incognita)*

★ [0] Northern Root Knot Nematode *(Meloidogyne Hapla)*

[0] Peanut Root Knot Nematode *(Meloidogyne arenaria)*

[0] Reniform Nematode *(Rotylenchulus reniformis)*

[ ] OTHER DISEASE NOT ON FORM (Specify)

20. PHYSIOLOGICAL RESPONSES: (ENTER 0 = Not tested, 1 = Susceptible, 2 = Resistant)

★ [0] Iron Chlorosis on Calcareois Soil

[ ] Other (Specify)

21. INSECT REACTION: (ENTER 0 = Not tested, 1 = Susceptible, 2 = Resistant)

[0] Mexican Bean Beetle *(Epilachna Varivestis)*

[0] Potato Leaf Hopper *(Empoasca fabae)*

[ ] Other (Specify)

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9501	Seed Coat Luster	9501
Leaf Shape	9501	Seed Size	9501
Leaf Color	9501	Seed shape	9501
Leaf Size	9501	Seedling Pigmentation	9501

Variety Name 9482

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY : Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEED	NO. SEEDS POD
				CM Width	CM Length	% Protein	% Oil		
Submitted 9482	127	2.3	93			41.0	23.2	13	3
Name of Similar Variety 9501	132	2.3	105			43.4	21.6	14	3

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A2 in the USDA soybean germplasm collection. Crop. Sci., 13: 420-421
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1:1-19

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EXHIBIT D. Addition Description of the Variety

Variety 9482 is a late group IV variety. If group IV maturities are divided into tenths, the relative maturity of 9482 is 4.8.

Isozyme Table

ACO2	ACO3	ACO4	ACP	DIA	ENP	IDH1	IDH2	MDH	MPI	PGM1	PHI1
2	1	1	A	B	A	2	1	B	A	1	1

EXHIBIT E. Statement of the Basis of Applicant's Ownership

Soybean Variety 9482

Variety 9482 was originated and developed by U.S. plant breeders from whom, by agreement, Pioneer Hi-Bred International, Inc. has obtained exclusive rights to variety 9482. No rights to variety 9482 are retained by the plant breeder or by any other party.